

1. Rejection of Claims 1, 4-6, 8-13, and 19-30 Under 35 U.S.C.

§102(b) :

With respect to claims 1, 4-6, 8-13, and 19-30 being anticipated by U.S. Patent 6,034,025 (herein referred to as "Yang, et al."), Applicant respectfully traverses the rejection.

For a reference to anticipate an invention, all of the elements of that invention must be present in the reference. The test for anticipation under section 102 is whether **each** and **every element** as set forth in the claims is found, either expressly or inherently, in a single prior art reference. *Verdegaal Bros. V. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); (Emphasis added). The **identical** invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); (Emphasis added). The elements must also be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990).

Applicant respectfully believes the current rejection should be withdrawn given the Examiner's repeated acknowledgement in this Office Action, as well as previously issued Office Actions, that Yang, et al. fails to disclose each and every element of Applicant's currently pending claims, which is required by statute and legal precedent to sustain a rejection under 35 U.S.C. §102(b). In particular, on page 3, lines 4-15 of the current Office Action, the

Examiner acknowledges,

. . . Yang et al does not explicitly state that his Lewis adduct is solid . . . and if the composition of the instant application is solid then it would be **obvious** to someone of ordinary skill in the art that an identical composition from the reference would also be expected to be solid. . . .

It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the parameters of the catalyst such as the ratio of alcohol/Lewis base relative to magnesium to achieve a desired result. It is well-settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955). (Emphasis added)

First and foremost, since the Examiner acknowledges, "it would be **obvious** to someone of ordinary skill in the art", Applicant respectfully believes the current rejection should be withdrawn given the Examiner is clearly using the wrong legal standard for anticipation. The **identical** invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); (Emphasis added). The elements must also be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990).

Additionally, the Examiner has further repeatedly acknowledged in this Office Action, as well as previously issued Office Actions, that Yang, et al. fails to disclose the same adducts as currently claimed by Applicant insomuch that the adducts of Yang, et al. are not solid. Again, as outlined *supra*, the **identical** invention must

be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); (Emphasis added). The elements must also be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990). Therefore, Applicant respectfully believes the instant rejection should be withdrawn.

Notwithstanding, as discussed in more detail below in the accompanying rejection to Yang, et al. under 35 U.S.C. §103(a), Yang, et al. discloses the formation of **solutions** between  $MgCl_2$ , a Lewis base, a mixture of at least two alcohols, and a hydrocarbon solvent, all of which cannot be descriptive of the **solid** adducts comprising the specific molar ratios claimed in the present application. In fact, a solid product is obtained in Yang, et al. by reacting the aforementioned solution with a transition metal halide compound, which is preferably a titanium halide compound and is known to be reactive with alcohols, and which subsequently would result in a dealcoholated solid product that would not produce the currently claimed solid adducts having the currently claimed molar ratios, including the currently claimed alcohol ratio.

Accordingly, in light of the above, Applicant respectfully believes Yang, et al. clearly does not anticipate Applicant's currently pending claims. As such, the Examiner is respectfully requested to withdraw the current rejection.

2. Rejection of Claims 1, 4-6, 8-13, and 19-30 Under 35 U.S.C.

§102(b) :

With respect to claims 1, 4-6, 8-13, and 19-30 being anticipated by U.S. Patent 4,829,034 (herein referred to as "Iiskolan, et al."), Applicant respectfully traverses the rejection.

As outlined *supra*, for a reference to anticipate an invention, all of the elements of that invention must be present in the reference. The test for anticipation under section 102 is whether **each and every element** as set forth in the claims is found, either expressly or inherently, in a single prior art reference. *Verdegaal Bros. V. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); (Emphasis added). The **identical** invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); (Emphasis added). The elements must also be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990).

As with the anticipation rejection to Yang, et al. discussed above, Applicant respectfully believes the current rejection should be withdrawn given the Examiner's repeated acknowledgement in this Office Action, as well as previously issued Office Actions, that Iiskolan, et al. fails to disclose each and every element of Applicant's currently pending claims, which is required by statute and legal precedent to sustain a rejection under 35 U.S.C. §102(b).

In particular, on page 4, lines 6-15, of the current Office Action, the Examiner acknowledges,

. . . **Iiskolan does not explicitly teach using 2.5 ROH per Mg** . . . it would have been **obvious** to someone of ordinary skill in the art at the time the invention was made to vary the ratio of reagent within the stated range of feasibility.

**It would have been obvious** to one having ordinary skill in the art at the time the invention was made to vary the parameters of the catalyst such as the ratio of alcohol/Lewis base relative to magnesium to achieve a desired result. It is well-settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955). (Emphasis added)

First and foremost, as with the anticipation rejection to Yang, et al., since the Examiner acknowledges, "it would be **obvious** to someone of ordinary skill in the art", Applicant respectfully believes the rejection should be withdrawn given the Examiner is clearly using the wrong legal standard for anticipation. The **identical** invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); (Emphasis added). The elements must also be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990). For this reason alone, Applicant respectfully believes the instant rejection should be withdrawn.

Additionally, the Examiner has further repeatedly acknowledged in this Office Action, as well as previously issued Office Actions, that Iiskolan, et al. fails to disclose the same adducts as

currently claimed by Applicant insomuch that Iiskolan, et al. does not disclose adducts comprising from 0.5 to 2.5 of ROH. Again, as outlined *supra*, the **identical** invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); (Emphasis added). The elements must also be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990).

Notwithstanding, Applicant respectfully believes Iiskolan, et al. discloses the use of diisobutylphthalate in a support precursor containing  $\text{MgCl}_2$  (1 mol) and an alcohol (about 3 mol). Alternatively, Applicant is currently claiming solid adducts comprising a Lewis base, wherein diisobutylphthalate is excluded, and if the Lewis base is an ester, it must be selected from alkyl esters of  $\text{C}_1\text{-C}_{10}$  aliphatic carboxylic acids. Therefore, clearly the disclosed catalysts of Iiskolan, et al. do not anticipate Applicant's currently claimed solid Lewis adducts.

Additionally, according to Iiskolan, et al., the precursors obtained containing diisobutylphthalate (i.e., Examples 1 and 2) is reacted with titanium tetrachloride to obtain the final catalyst, which gave a maximum activity of 345 kg of polypropylene per gram of titanium. Contrastingly, Example 3 in Applicant's specification uses ethyl acetate with an alcohol and  $\text{MgCl}_2$ , with the obtained catalyst precursor then being reacted with titanium tetrachloride and diisobutylphthalate (i.e., catalyst preparation procedure A) to generate a final catalyst comprising 2.8% of titanium. The

resultant final catalyst unexpectedly demonstrated an activity of 37 kg of polypropylene per gram of catalyst, which corresponds to an activity of **1320** kg of polypropylene per gram of titanium. Therefore, the activity of Applicant's catalyst resulting from Applicant's currently claimed solid Lewis adduct is unexpectedly **4 times higher** than the activity disclosed in Iiskolan, et al.

Accordingly, in light of the above, Applicant respectfully believes Iiskolan, et al. clearly does not anticipate Applicant's currently pending claims. As such, the Examiner is respectfully requested to withdraw the current rejection.

**3. Rejection of Claims 1, 4-6, 8-13, and 19-30 Under 35 U.S.C.**

**§103(a)**

With respect to claims 1, 4-6, 8-13, and 19-30 being unpatentable over U.S. Patent 6,034,025 (herein referred to as "Yang, et al."), Applicant respectfully traverses the rejection.

The U.S. Supreme Court in *Graham v. John Deere Co.*, 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under §103 by (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; (3) resolving the level of ordinary skill in the art; and, (4) inquiring as to any objective evidence of non-obviousness.

Accordingly, for the Examiner to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must

be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP §2142.

Arguments regarding Yang, et al. *supra*, as well as those in Applicant's previous responses of September 13, 2007 and January 3, 2007, are all incorporated herein by reference in their entirety.

As previously discussed in Applicant's aforementioned responses, Applicant respectfully believes Yang, et al. fails to disclose, teach, or suggest Applicant's current claimed solid Lewis adducts comprising  $\text{MgCl}_2$ , a Lewis base (LB) selected from the group consisting of ethers, ketones, and alkyl esters of  $\text{C}_1$ - $\text{C}_{10}$  aliphatic carboxylic acids, and an alcohol ROH, in which R is a  $\text{C}_1$ - $\text{C}_{15}$  hydrocarbon group optionally substituted with heteroatom containing groups, which compounds are in molar ratios to each other defined by the following formula:  $\text{MgCl}_2(\text{ROH})_m(\text{LB})_n$  in which m ranges from 0.5 to 2.5, and n ranges from 0.07 to 6. See pages 2-9 in Applicant's response of September 13, 2007, as well as page 12, line 23 - page 15, line 3, in particular, page 14, line 22 - page 15, line 3, in Applicant's response of January 3, 2007.

In fact, as previously discussed in the aforementioned sections of Applicant's previous responses, Applicant respectfully believes



Yang, et al., at the very least, fails to disclose, teach, or suggest Applicant's currently claimed adducts, wherein Applicant's currently claimed adducts are **solid**. In particular, the Examiner has asserted on page 2, line 16 - page 3, line 15 of the currently pending Office Action,

Yang et al. teaches a method of producing a catalyst for the polymerization of olefins. Whereby, magnesium halide is contacted in solution with a mixture of a cyclic ether and alcohols which can be further reacted with a titanium (group 4 metal) compound forming a solid precipitate (abstract), polymerization of  $\alpha$ -olefins (ethylene and propylene) (column 2, lines 42-44), methanol and ethanol as the alcohols and THF (tetrahydrofuran) as the cyclic ether having from 0.5-20 equivalents of alcohol and 0.5-20 equivalents of Lewis base (THF) per mole of magnesium compound (column 3, lines 45-64), reacting with an organoaluminum compound (column 6, lines 7-22), and exemplifies Magnesium chloride ( $MgCl_2$ ) (column 7, line 50).

Although, Yang et al does not explicitly state that his Lewis adduct is solid, however, his composition appears identical to that of the instant application and if the composition of the instant application is solid then it would be obvious to someone of ordinary skill in the art that an identical composition from the reference would also be expected to be solid (again being in solution does not prevent a compound from being solid).

However, Applicant respectfully traverses the Examiner's assertions outlined above.

First and foremost, the Examiner contends in the current Office Action on page 2, lines 16-19,

Yang et al. teaches a method of producing a catalyst for the polymerization of olefins. Whereby, magnesium halide is contacted in solution with a mixture of a cyclic ether and alcohols which can be further reacted with a titanium (group 4 metal) compound forming a solid precipitate (**abstract**) . . . .

However, the actual full abstract of Yang, et al. discloses,

A method for producing a catalyst for the polymerization or copolymerization of olefins is described. The method includes producing a **magnesium compound solution** by reacting a **magnesium halide compound in the mixture of a cyclic ether and two alcohols with an organosilane compound**. The **magnesium compound solution** may be reacted with a titanium halide compound such that precipitated solid components are formed. These precipitated solid components may be reacted with a titanium compound and an electron donor to produce the polymerization catalyst. (Emphasis added).

Accordingly, Applicant respectfully believes the abstract of Yang, et al., clearly discloses a method for producing a magnesium compound **solution**, and not **solid** Lewis adducts as currently claimed by Applicant.

Additionally, Applicant respectfully believes the point that Yang, et al. expressly and definitively discloses a method for producing a magnesium compound **solution** is clearly and expressly reiterated throughout Yang, et al. In particular, Yang, et al. clearly states in several passages,

In step (i), the **magnesium compound solution** may be produced by **dissolving** the aforementioned magnesium halide compounds in a **solvent** of a mixture of two or more kinds of alcohol and cyclic ether either in the presence or absence of a hydrocarbon **solvent**. (Emphasis added).

. . . . .

When producing a **magnesium halide compound solution**, a mixture of two or more kinds of alcohol and cyclic ether may be used as a **solvent**. By the use of such a mixed **solvent**, magnesium compounds may be more easily turned into a **solution** than by the use of any one single

**solvent.** (Emphasis added).

. . . . .

The entire alcohol mixture may all be used in **dissolving** the magnesium halide compound. Alternatively, a part of the alcohol mixture may be used in **dissolving** the magnesium compound, while the remaining part may be added to the magnesium **solution** obtained by **dissolving** the magnesium compound. (Emphasis added).

See col. 3, lines 31-35; col. 3, lines 44-48; and col. 3, line 65 - col. 4, line 3, in Yang, et al. Accordingly, Applicant respectfully traverses the Examiner's contention on page 3, lines 4-9 of the current Office Action,

Although, Yang et al. does not explicitly state that his Lewis adduct is solid, however, his composition appears identical to that of the instant application and if the composition of the instant application is solid then it would be obvious to someone of ordinary skill in the art that an identical composition from the reference would also be expected to be solid (again being in solution does not prevent a compound from being solid).

However, given the express disclosure of Yang, et al., some portions of which are highlighted *supra*, Applicant respectfully believes that any Lewis adduct disclosed in Yang, et al. would not be "identical" to, or merely an obvious variation of, Applicant's currently claimed Lewis adducts, or at the very least, Applicant respectfully believes any Lewis adduct disclosed in Yang, et al. would not be "identical" to, or merely an obvious variation of, the **solid** Lewis adducts as currently claimed by Applicant.

Further, Applicant respectfully traverses the Examiner's assertion that, "again being in solution does not prevent a compound

from being solid." However, Applicant respectfully believes given the express disclosure of Yang, et al., one can only come to the conclusion that the magnesium compound **solution** disclosed in Yang, et al., and relied upon by the Examiner, is in fact **a solution and not a solid**. However, if the Examiner maintains the current rejection, Applicant respectfully requests the Examiner to provide Applicant with objective, factual evidence showing (i) the magnesium compound **solution** disclosed in Yang, et al. would in fact be "identical to that of the instant application", as asserted by the Examiner, and (ii) that the magnesium compound solution would in fact be a **solid** adduct as currently claimed by Applicant. Therefore, for the reasons outlined *supra*, Applicant respectfully believes the current rejection should be withdrawn.

Notwithstanding all of the facts outlined above, Applicant still believes the Examiner has not established a *prima facie* case of obviousness. In particular, as outlined *supra*, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP §2142. However, Applicant respectfully believes the Examiner has

not satisfied each of the aforementioned criteria to establish a *prima facie* case of obviousness.

In fact, Applicant respectfully believes the Examiner has not demonstrated (i) *how* and *where*, by particularly pointing out by column and line, Yang, et al. discloses, teaches, or suggests each claim limitation outlined by Applicant's currently pending claims; (ii) *why*, if Yang, et al. does not expressly disclose, teach, or suggest each claim limitation outlined by Applicant's currently pending claims, one would have deviated from the express disclosure of Yang, et al. and modified Yang, et al. as suggested by the Examiner; and (iii) *why* one would have expected such a modification to succeed. However, this is the Examiner's initial burden in establishing a *prima facie* case of obviousness. See MPEP §2142 and §2143.

Moreover, Applicant respectfully traverses the Examiner's assertion on page 3, lines 10-15,

It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the parameters of the catalyst such as the ratio of alcohol/Lewis base relative to magnesium to achieve a desired result. It is well-settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

However, Applicant respectfully believes the Examiner has not identified what, if any, **result effective variable** is being optimized in Applicant's currently pending claims, much less

demonstrated with objective, factual evidence that whatever supposed result effective variable the Examiner is referring to, was so recognized as a result effective variable in the art. See *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). Accordingly, if the Examiner maintains the current rejection and continues to rely on *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), Applicant respectfully requests the Examiner to identify, (i) what variable, or variables, in Applicant's currently pending claims the Examiner is asserting is a result effective variable, (ii) objective, factual evidence supporting the Examiner's assertion that the identified result effective variable, or variables, from (i) were in fact recognized in the art to be a result effective variable, and (iii) how the supposed result effective variable from (ii) is supposedly being optimized in Applicant's currently pending claims. See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), and *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

Furthermore, as outlined in Applicant's previous responses of September 13, 2007 and January 3, 2007, in addition to not disclosing, teaching, or suggesting Applicant's currently claimed solid Lewis adducts, the currently claimed adducts unexpectedly have a higher activity than those disclosed in Yang, et al.

In particular, Applicant believes the activity of the catalyst components disclosed in Yang, et al. range from 1.6 - 5.2 kg/g, with the catalysts of Yang, et al. having an average activity of 3.8 kg/g. However, Applicant's currently claimed solid Lewis adducts

unexpectedly have activities ranging from 9.3-107.6 kg/g, with the average activity unexpectedly being 50.3 kg/g. Accordingly, Applicant's currently claimed solid Lewis adducts have an average activity of more than 13 times the average activity of the catalysts of Yang, et al.

Notwithstanding all of the above, as discussed *supra* with respect to the currently pending anticipation rejection to Yang, et al., Yang, et al. discloses the formation of **solutions** between  $MgCl_2$ , a Lewis base, a mixture of at least two alcohols, and a hydrocarbon solvent, which cannot be descriptive of the **solid** adducts comprising the specific molar ratios claimed in the present application. In fact, a solid product is obtained in Yang, et al. by reacting the aforementioned solution with a transition metal halide compound, which is preferably a titanium halide compound and is known to be reactive with alcohols, and which subsequently would result in a dealcoholated solid product that would not produce the currently claimed solid adducts having the currently claimed molar ratios, including the currently claimed alcohol ratio. In this regard, Applicant respectfully believes the Examiner has not accounted for this factual discrepancy between the disclosure of Yang, et al. and Applicant's currently claimed solid Lewis adducts, nor has the Examiner explained why one would have deviated from this express disclosure in Yang, et al. to attempt to arrive at Applicant's currently claimed adducts. However, as outlined *supra*, this is the Examiner's initial burden to establish a *prima facie*

case of obviousness; anything less than this does not meet the threshold requirements for a *prima facie* obviousness rejection under 35 U.S.C. §103(a), and as such, the rejection should be withdrawn.

Accordingly, in light of the above, Applicant respectfully believes Applicant's currently pending claims are patentably distinct from Yang, et al. As such, the Examiner is respectfully requested to withdraw the current rejection.

**4. Rejection of Claims 1, 4-6, 8-13, and 19-30 Under 35 U.S.C.**

**§103(a)**

With respect to claims 1, 4-6, 8-13, and 19-30 being unpatentable over U.S. Patent 4,829,034\* (herein referred to as "Iiskolan, et al."), Applicant respectfully traverses the rejection.

The U.S. Supreme Court in *Graham v. John Deere Co.*, 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under §103 by (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; (3) resolving the level of ordinary skill in the art; and, (4) inquiring as to any objective evidence of non-obviousness.

Accordingly, for the Examiner to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references

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\* The Office Action states claims 1, 4-6, 8-13 and 19-30 are rejected as being unpatentable over Iiskolan, et al., USP 6,034,025. Applicant assumes the Examiner meant U.S. Patent 4,829,034. However, if this assumption is incorrect, the Examiner is respectfully requested to clarify the grounds of the instant rejection.



themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP §2142.

Arguments regarding Iiskolan, et al. *supra*, as well as those in Applicant's previous responses of September 13, 2007 and January 3, 2007, are incorporated herein by reference in their entirety.

As previously discussed in Applicant's aforementioned responses, Applicant respectfully believes Iiskolan, et al. fails to disclose, teach, or suggest Applicant's currently claimed solid Lewis adducts comprising  $\text{MgCl}_2$ , a Lewis base (LB) selected from the group consisting of ethers, ketones, and alkyl esters of  $\text{C}_1$ - $\text{C}_{10}$  aliphatic carboxylic acids, and an alcohol ROH, in which R is a  $\text{C}_1$ - $\text{C}_{15}$  hydrocarbon group optionally substituted with heteroatom containing groups, which compounds are in molar ratios to each other defined by the following formula:  $\text{MgCl}_2(\text{ROH})_m(\text{LB})_n$  in which m ranges from 0.5 to 2.5, and n ranges from 0.07 to 6. See page 10, line 1 - page 17, line 20 in Applicant's response of September 13, 2007, as well as page 15, line 18 - page 19, line 12, in particular, page 18, line 14 - page 19, line 12, in Applicant's response of January 3, 2007.

In particular, as previously discussed in the aforementioned sections of Applicant's previous responses, Applicant respectfully believes Iiskolan, et al., at the very least, fails to disclose,

teach, or suggest Applicant's currently claimed adducts, which comprise  $\text{MgCl}_2$ , the particularly claimed Lewis base, and the particularly claimed alcohol, wherein the constituents, particularly the claimed alcohol (i.e., ROH), is in the particularly claimed ratio. In fact the Examiner acknowledges on page 4, line 6 of the current Office Action,

. . . Iiskolan does not explicitly teach using 2.5 ROH per Mg. . . .

To account for this deficiency in Iiskolan, et al., the Examiner asserts on page 4, lines 6-9,

. . . Iiskolan does disclose a range that encompasses 2.5 ROH per Mg, it would have been obvious to someone of ordinary skill in the art at the time the invention was made to vary the ratio of reagent within the stated range of feasibility. (Emphasis added)

However, as outlined in Applicant's responses of September 13, 2007 and January 3, 2007, Applicant respectfully believes the broad, general disclosure of Iiskolan, et al. does not anticipate or render obvious Applicant's currently claimed solid Lewis adducts. In particular, in order to anticipate the claims, the claimed subject matter must be disclosed in the reference with **"sufficient specificity"** to constitute an anticipation under the statute. Additionally, if the claims are directed to a narrow range, and the reference teaches a broad range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with **"sufficient specificity"** to constitute an

anticipation of the claims. See *Atofina v. Great Lakes Chem. Corp.*, 441 F.3d 991, 999, 78 USPQ2d 1417, 1423, (Fed. Cir. 2006); and MPEP §2131.03 II. Therefore, in conjunction with Applicant's arguments in section 2 of this response, Applicant respectfully believes Iiskolan, et al. does not anticipate Applicant's currently claimed solid Lewis adducts.

As for obviousness, a determination of patentability under 35 U.S.C. §103 should be made upon the facts of the particular case in view of the totality of the circumstances. See *In re Dillion*, 919 F.2d 688, 692-93, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (*in banc*). Use of *per se* rules by Office personnel is improper for determining whether claimed subject matter would have been obvious under 35 U.S.C. §103. See *In re Brouwer*, 77 F.3d 422, 425, 37 USPQ2d 1663, 1666 (Fed. Cir. 1996); *In re Ochiai*, 71 F.3d 1565, 1572, 37 USPQ2d 1127, 1133 (Fed. Cir. 1995); *In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994). The fact that a claimed species or subgenus is encompassed by a prior art genus is not sufficient by itself to establish a *prima facie* case of obviousness. Also, the fact that a claimed compound may be encompassed by a disclosed generic formula does not by itself render that compound obvious. *In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994). See also *In re Jones*, 958 F.2d 347, 350, 21 USPQ2d 1941, 1943 (Fed. Cir. 1992); *In re Deuel*, 51 F.3d 1552, 1559, 34 USPQ2d 1210, 1215 (Fed. Cir. 1995). Accordingly, even if Iiskolan, et al. discloses a range that overlaps, or even encompasses Applicant's currently

claimed alcohol range, which Applicant denies, that in and of itself is not necessarily enough to anticipate or render obvious Applicant's solid Lewis adducts. In fact, it is incumbent on the Examiner to show, absent Applicant's direct teaching, *how* and *why* the prior art discloses Applicant's currently claimed solid Lewis adducts with sufficient specificity to either anticipate, or render obvious the adducts. As such, since Applicant respectfully believes the Examiner has used the wrong legal standard for obviousness, Applicant respectfully believes the current rejection should be withdrawn.

Furthermore, Applicant respectfully traverses the Examiner's assertion on page 4, lines 7-9 of the current Office Action,

. . . it would have been obvious to someone of ordinary skill in the art at the time the invention was made to vary the ratio of reagent within the stated range of feasibility.

However, that which is "within the capabilities" of one of ordinary skill in the art, is not synonymous with obviousness. See *Ex parte Levengood*, 28 USPQ2d 1300, 1301 (BPAI 1993). Additionally, change for the sake of change is not what one of ordinary skill in the art seeks to do. "One of ordinary skill in the art follows conventional wisdom and does not innovate." *Standard Oil Co. v. American Cyanamid Co.*, 227 USPQ 293, 297-98 (Fed. Cir. 1985); (Emphasis added). Accordingly, Applicant respectfully believes the Examiner has not established *why* one would have modified Iiskolan, et al. in an attempt to arrive at Applicant's currently claimed solid Lewis

adducts, and *why* one would have had a reasonable expectation of success. However, this is the Examiner's initial burden to establish a *prima facie* case of obviousness. See MPEP §2142 and §2143. Therefore, since the current rejection falls short of this standard, Applicant respectfully believes the current rejection should be withdrawn.

Notwithstanding the above, Applicant is currently claiming solid Lewis adducts comprising, in part, a Lewis base (LB) selected from the group consisting of ethers, ketones, and **alkyl esters of C<sub>1</sub>-C<sub>10</sub> aliphatic carboxylic acids**. With respect to the instant rejection, Applicant respectfully believes Iiskolan, et al., also fails to disclose, teach, or suggest Applicant's currently, specifically claimed Lewis base. Additionally, Applicant believes the Examiner has not accounted for this deficiency in Iiskolan, et al. However, as outlined *supra*, a determination of patentability under 35 U.S.C. §103 should be made upon the facts of the particular case in view of the totality of the circumstances. See *In re Dillion*, 919 F.2d 688, 692-93, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (*in banc*). Use of *per se* rules by Office personnel is improper for determining whether claimed subject matter would have been obvious under 35 U.S.C. 103. See *In re Brouwer*, 77 F.3d 422, 425, 37 USPQ2d 1663, 1666 (Fed. Cir. 1996); *In re Ochiai*, 71 F.3d 1565, 1572, 37 USPQ2d 1127, 1133 (Fed. Cir. 1995); *In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994). The fact that a claimed species or subgenus is encompassed by a prior art genus is not

sufficient by itself to establish a *prima facie* case of obviousness. Also, the fact that a claimed compound may be encompassed by a disclosed generic formula does not by itself render that compound obvious. *In re Baird*, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994). See also *In re Jones*, 958 F.2d 347, 350, 21 USPQ2d 1941, 1943 (Fed. Cir. 1992); *In re Deuel*, 51 F.3d 1552, 1559, 34 USPQ2d 1210, 1215 (Fed. Cir. 1995). Therefore, Applicant respectfully believes the Examiner has not established *why* one would have modified Iiskolan, et al. in an attempt to arrive at Applicant's currently claimed solid Lewis adducts comprising Applicant's currently claimed Lewis base, and *why* one would have a reasonable expectation of success. However, this is the Examiner's initial burden to establish a *prima facie* case of obviousness. See MPEP §2142 and §2143. As such, Applicant respectfully believes the current rejection should be withdrawn.

Moreover, Applicant respectfully traverses the Examiner's assertion on page 4, lines 10-15 of the current Office Action,

It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the parameters of the catalyst such as the ratio of alcohol/Lewis base relative to magnesium to achieve a desired result. It is well-settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), *In re Aller*, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

However, as outlined *supra* with respect to Yang, et al., Applicant respectfully believes the Examiner has not identified what, if any,

**result effective variable** is being optimized in Applicant's currently pending claims, much less demonstrated with objective, factual evidence that whatever supposed result effective variable the Examiner is referring to, was so recognized as a result effective variable in the art. See *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). Accordingly, if the Examiner maintains the current rejection and continues to rely on *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), Applicant respectfully requests the Examiner to identify, (i) what variable, or variables, in Applicant's currently pending claims the Examiner is asserting is a result effective variable, (ii) objective, factual evidence supporting the Examiner's assertion that the identified result effective variable, or variables, from (i) were in fact recognized in the art to be a result effective variable, and (iii) how the supposed result effective variable from (ii) is supposedly being optimized in Applicant's currently pending claims. See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

Further, as outlined in Applicant's previous responses of September 13, 2007 and January 3, 2007, in addition to not disclosing, teaching, or suggesting Applicant's currently claimed solid Lewis adducts, the currently claimed adducts unexpectedly have a higher activity than those disclosed in Iiskolan, et al.

In particular, Applicant believes the general activity of the catalyst components disclosed in Iiskolan, et al. range from 5.7 -

9.9 kg/g (i.e., kg of polymer produced per gram of catalyst used), with the catalyst components of Iiskolan, et al. having an average general activity of 8.3 kg/g. However, Applicant's currently claimed solid Lewis adducts unexpectedly have activities ranging from 9.3-107.6 kg/g, with the average general activity unexpectedly being 50.3 kg/g. Accordingly, Applicant's currently claimed solid Lewis adducts have an average general activity of more than 6 times the average general activity of the catalyst components of Iiskolan, et al.

Notwithstanding all of the above, as discussed *supra* with respect to the currently pending anticipation rejection to Iiskolan, et al., Applicant respectfully believes Iiskolan, et al. specifically discloses the use of diisobutylphthalate in a support precursor containing  $\text{MgCl}_2$  (1 mol) and an alcohol (about 3 mol). Alternatively, Applicant is currently claiming solid adducts comprising a Lewis base, wherein diisobutylphthalate is excluded, and if the Lewis base is an ester, it must be selected from alkyl esters of  $\text{C}_1$ - $\text{C}_{10}$  aliphatic carboxylic acids. However, Applicant respectfully believes the Examiner has not addressed this factual discrepancy, nor has the Examiner explained why one would have deviated from the express disclosure of Iiskolan, et al. and used a Lewis base other than diisobutylphthalate. However, as outlined *supra*, this is the Examiner's initial burden to establish a *prima facie* case of obviousness.

Additionally, according to Iiskolan, et al., the specific



precursors obtained containing diisobutylphthalate (i.e., Examples 1 and 2) is reacted with titanium tetrachloride to obtain the final catalyst, which gave a maximum activity of 345 kg of polypropylene per gram of titanium. Contrastingly, specific Example 3 in Applicant's specification uses ethyl acetate with an alcohol and  $MgCl_2$ , with the obtained catalyst precursor then being reacted with titanium tetrachloride and diisobutylphthalate (i.e., catalyst preparation procedure A) to generate a final catalyst comprising 2.8% of titanium. The resultant final catalyst unexpectedly demonstrated an activity of 37 kg of polypropylene per gram of catalyst, which corresponds to an activity of **1320** kg of polypropylene per gram of titanium. Therefore, the activity of Applicant's specific catalyst resulting from Applicant's currently claimed solid Lewis adduct is unexpectedly **4 times higher** than the activity of the specifically disclosed catalyst in Iiskolan, et al.

However, in this regard, Applicant respectfully believes the Examiner has not accounted for the factual discrepancy between the general and specific activities disclosed Iiskolan, et al. and that of Applicant's currently claimed solid Lewis adducts, nor has the Examiner explained why one would have deviated from this express disclosure in Iiskolan, et al. to attempt to arrive at Applicant's currently claimed adducts. However, as outlined *supra*, this is the Examiner's initial burden to establish a *prima facie* case of obviousness; anything less than this does not meet the threshold requirements for a *prima facie* obviousness rejection under 35 U.S.C.

§103(a), and as such, the rejection should be withdrawn.

Accordingly, in light of the above, Applicant respectfully believes Applicant's currently pending claims are patentably distinct from Iiskolan, et al. As such, the Examiner is respectfully requested to withdraw the current rejection.

**5. Rejection of Claims 14-17 Under 35 U.S.C. §103(a):**

With respect to claims 14-17 being unpatentable over U.S. Patent 4,829,034 (herein referred to as "Iiskolan, et al.") in view of U.S. Patent 6,034,025 (herein referred to as "Yang, et al."), Applicant respectfully traverses this rejection.

The U.S. Supreme Court in *Graham v. John Deere Co.*, 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under §103 by (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; (3) resolving the level of ordinary skill in the art; and, (4) inquiring as to any objective evidence of non-obviousness.

Accordingly, for the Examiner to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP

§2142.

All arguments regarding Iiskolan, et al. and Yang, et al. *supra* are incorporated herein by reference in their entirety. Additionally, as outlined in Applicant's previous responses of September 13, 2007 and January 3, 2007, in addition to not disclosing, teaching, or suggesting Applicant's currently claimed solid Lewis adducts, the currently claimed adducts unexpectedly have a higher activity than those disclosed in Iiskolan, et al. or Yang, et al.

In particular, Applicant believes the activity of the catalyst components disclosed in Iiskolan, et al. range from 5.7 - 9.9 kg/g (i.e., kg of polymer produced per gram of catalyst used), with the catalyst components of Iiskolan, et al. having an average activity of 8.3 kg/g. The activity of the catalysts disclosed in Yang, et al. range from 1.6 - 5.2 kg/g, with the catalysts of Yang, et al. having an average activity of 3.8 kg/g. However, Applicant's currently claimed solid Lewis adducts unexpectedly have activities ranging from 9.3-107.6 kg/g, with the average activity unexpectedly being 50.3 kg/g. Accordingly, Applicant's currently claimed solid Lewis adducts have an average activity of more than 6 times the average activity of the catalyst components of Iiskolan, et al., and more than 13 times the average activity of the catalysts of Yang, et al.

Accordingly, in light of the above, Applicant respectfully believes Applicant's currently pending claims are patentably

distinct from Iiskolan, et al. in view of Yang, et al. As such, the Examiner is respectfully requested to withdraw the current rejection.

### CONCLUSION

Based upon the above remarks, the presently claimed subject matter is believed to be novel and patentably distinguishable over the references of record. The Examiner is therefore respectfully requested to reconsider and withdraw all rejections, and allow pending claims 1, 4-6, 8-17, and 19-30. Favorable action with an early allowance of the claims pending in this application is earnestly solicited.

The Examiner is welcomed to telephone the undersigned practitioner if he has any questions or comments.

Respectfully submitted,

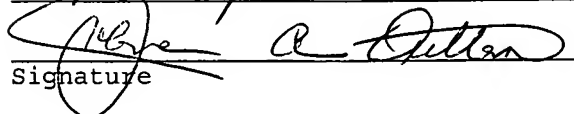
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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 on

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